AMENDMENTS TO THE CLAIMS

1. (Previously presented) A Ziegler catalyst for preparing 1-olefin homopolymers and copolymers by polymerization of a 1-olefin of the formula $R^4CH=CH_2$, where R^4 is hydrogen or an alkyl radical having from 1 to 10 carbon atoms, in suspension, in solution or in the gas phase, which catalyst consists essentially of the reaction product of a magnesium alkoxide (component a) with a titanium compound (component b) and a chlorine-containing organoaluminum compound (component c) together with an additional component (d) comprising a compound of the chemical formula

$$M - R_x$$

where M is an element of main group IV of the Periodic Table; R is halogen and x is an integer from 1-4.

2. (Previously presented) A Ziegler catalyst as claimed in claim 1, wherein the radicals R in component (d) are identical and the element of main group IV of the Periodic Table present in component (d) is silicon or germanium.

3. (Previously presented) A Ziegler catalyst as claimed in claim 1, wherein the radicals R in component (d) are not identical and the element of main group IV of the Periodic Table present in component (d) is silicon or germanium.

4. (Previously presented) A Ziegler catalyst as claimed in claim 1, wherein component (a) is a magnesium alkoxide of the formula $Mg(OR^1)(OR^2)$, where R^1 and R^2 are identical or different and are each an alkyl radical having from 1 to 6 carbon atoms, in particular $Mg(OCH_3)_2$, $Mg(OC_2H_5)_2$, $Mg(O\text{-}iC_3H_7)_2$, $Mg(O\text{-}nC_4H_9)_2$, $Mg(OCH_3)(OC_2H_5)$, $Mg(OC_2H_5)(O\text{-}nC_3H_7)$, or a magnesium alkoxide of the formula $Mg(OR)_nX_m$, where X = halogen, $(SO_4)_{1/2}$, OH, $(CO_3)_{1/2}$, or $(PO_4)_{1/3}$, R is as defined above for R^1 or R^2 and $n + m = 2$.

5. (Previously presented) A Ziegler catalyst as claimed in claim 1, wherein the component (b) present is $TiCl_4$ or $Ti(OR)_4$.

6. (Previously presented) A Ziegler catalyst as claimed in claim 1, wherein the component (d) has a chemical composition in which the radical R is a chlorine or bromine atom.

7. (Canceled)

8. (Previously presented) A process for preparing a Ziegler catalyst as claimed in claim 1, which comprises reacting the magnesium alkoxide of the component (a) with the titanium compound of the component (b) at a temperature in the range from 20 to 100°C, in the presence of an inert hydrocarbon while stirring, with from 0.05 to 5 mol of component (b) being used per 1 mol of magnesium alkoxide, wherein component (d) is added.

9. (Previously presented) The process as claimed in claim 8, wherein the component (d) is added at a temperature of from 20 to 120°C, in the presence of an inert hydrocarbon while stirring, with from 0.05 to 5 mol of component (d) being used per 1 mol of magnesium alkoxide.

10. (Previously presented) The process as claimed in claim 8, wherein the reaction is from 0.5 to 8 hours.

11. (Previously presented) The process as claimed in claim 8, wherein the reaction product of component (a), component (b) and component (d) is subsequently reacted with component (c), a chlorine-containing organoaluminum compound.

12. (Previously presented) A process for preparing 1-olefin homopolymers and copolymers by polymerization of a 1-olefin of the formula $R^4CH=CH_2$, where R^4 is hydrogen or an alkyl radical having from 1 to 10 carbon atoms, in suspension, in solution or in the gas phase in the presence of the catalyst as claimed in claim 1, where the catalyst is combined with a cocatalyst either in a stirred vessel at a temperature in the range from -30 to 150°C, prior to the

polymerization or directly in the polymerization vessel at a temperature in the range from 20 to 200°C and the polymerization is carried out in solution, in suspension or in the gas phase, continuously or batchwise, in one or more stages at a temperature in the range from 20 to 200°C, and a pressure in the range from 0.5 to 50 bar.

13. (Original) The process as claimed in claim 12, wherein the addition of the cocatalyst is carried out in two steps, with the catalyst being preactivated with a first part of cocatalyst at a temperature in the range from -30 to 150°C prior to the polymerization reaction and the further addition of a further part of the same cocatalyst or another cocatalyst being carried out in the polymerization reactor at a temperature of from 20 to 200°C.

14. (Previously presented) The process as claimed in claim 12, wherein the catalyst is introduced into the polymerization reaction in a prepolymerized state.

15. (Previously presented) The process as claimed in claim 12, wherein ethylene, propylene, 1-butene, 1-hexene, 4-methyl-1-pentene or 1-octene, alone or in a mixture of at least 50% by weight of ethylene and not more than 50% by weight of another 1-olefin of the above formula, is polymerized and the molar mass of the polymer is regulated by means of hydrogen.

16. (Previously presented) The process as claimed in claim 12 carried out in suspension or solution, wherein the catalyst is used in a concentration, based on transition metal, of from 0.0001 to 1 mmol, of transition metal per dm^3 of dispersion medium and the polymerization is carried out in an inert dispersion medium selected from the group consisting of aliphatic and cycloaliphatic hydrocarbons which have carefully been freed of oxygen, sulfur compounds and moisture.

17. (Canceled)

18. (Previously presented) A process for preparing a Ziegler catalyst as claimed in claim 8, wherein the magnesium alkoxide of component (a) is reacted with the titanium compound of the

component (b) at a temperature in the range from 60 to 90°C, with from 0.1 to 3.5 mol of component (b) per 1 mol of magnesium alkoxide; the component (d) is added at a temperature of from 60-100°C; and the reaction is carried out from 2 to 6 hours.

19. (Previously presented) A process for preparing 1-olefin homopolymers and copolymers as claimed in claim 12, wherein the catalyst is combined with the cocatalyst at a temperature in the range from -10 to 120°C and the polymerization is carried out at a temperature in the range of 50 to 150°C and a pressure in the range form 1.5 to 30 bar.

20. (Previously presented) The process as claimed in claim 16, wherein the catalyst is used in a concentration, based on transition metal of from 0.001 to 0.5 mmol of transition metal per dm^3 of dispersion medium and said inert dispersion medium selected from the group consisting of butane, pentane, hexane, heptane, isooctane, cyclohexane, methylcyclohexane, petroleum fractions and hydrogenated diesel oil fractions which have carefully been freed of oxygen, sulfur compounds and moisture.

21. (Currently amended) A Ziegler catalyst for preparing 1-olefin homopolymers and copolymers by polymerization of a 1-olefin of the formula $R^4CH=CH_2$, where R^4 is hydrogen or an alkyl radical having from 1 to 10 carbon atoms, in suspension, in solution or in the gas phase, which catalyst consists of the reaction product of a magnesium alkoxide (component a) with a titanium compound (component b) and an organometallic compound (component c) together with an additional component (d) comprising a compound of the chemical formula

$$M - R_x$$

where M is an element of main group IV of the Periodic Table; R is halogen, alkyl having from 1 to 10 carbon atoms, oxyakyl having from 1 to 10 carbon atoms, ~~or cycloalkyl~~ cycloalkyl having from 4 to 8 carbon atoms in the ring and from 0 to 6 substituents R' on the ring, or aryl ~~aryl~~ having from 6 to 10 carbon atoms in the aromatic and from 0 to 6 substituents R' on the aromatic, where R' is a halogen or an alkyl radical having from 1 to 4 carbon atoms or an OH

group or an NO_2 group or an oxyalkyl radical having from 1 to 4 carbon atoms; and x is an integer from 1-4.

22. (Previously presented) A Ziegler catalyst as claimed in claim 1 wherein component (a) is $Mg(OC_2H_5)_2$, component (b) is $TiCl_4$, component (c) is $Al_2(C_2H_5)_3Cl_3$ and component (d) is $SiCl_4$.

23. (Canceled).

24. (Canceled).